

What is claimed:

1. A system for treating breast tissue, comprising:
a cannula having a proximal end, a distal end, and a first lumen extending
5 between the proximal and distal ends, the distal end configured for insertion into a breast
duct such that the first lumen is in fluid communication with the breast duct; and
a tissue diagnostic device disposed within the first lumen.
2. The system of claim 1, wherein the tissue diagnostic device comprises a
10 spectrometer.
3. The system of claim 1, further comprising an electrode secured to the distal end of
the cannula.
- 15 4. The system of claim 1, further comprising an electrode that is slidably disposed
within the first lumen.
5. The system of claim 1, further comprising an optical fiber for delivering laser
energy, the optical fiber secured to, or slidably disposed within the first lumen of, the
20 cannula.

6. The system of claim 1, further comprising an ultrasonic transducer secured to, or slidably disposed within the first lumen of, the cannula.

7. The system of claim 1, further comprising a media delivery device coupled to the
5 proximal end of the cannula.

8. The system of claim 1, further comprising an aspirator coupled to the proximal end of the cannula.

10 9. The system of claim 1, the cannula having a second lumen extending between the distal and proximal ends, and further comprising an imaging device secured to, or slidably disposed within, the second lumen.

10. The system of claim 9, wherein the imaging device comprises a CCD camera
15 secured to the cannula.

11. The system of claim 9, wherein the imaging device comprises an endoscope.

12. The system of claim 9, further comprising an electrode secured to the distal end of
20 the cannula.

13. The system of claim 1, the cannula having a second lumen extending between the distal and proximal ends, and further comprising a device slidably disposed within the second lumen, the device selected from the group consisting of an electrode, an optical fiber, and an ultrasonic transducer.

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14. The system of claim 1, wherein the cannula is adapted to deliver a substance to the breast duct, the substance selected from the group consisting of a radiation seed, a toxic agent, a therapeutic agent, a necrosing agent, saline, and electrically conductive fluid.

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15. A system for treating breast tissue, comprising:

a cannula having a proximal end, a distal end, and a lumen extending between the proximal and distal ends, the distal end configured for insertion into a breast duct such that the lumen is in fluid communication with the breast duct;

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an imaging device for providing imaging functionality to the cannula; and

an energy delivery device secured to, or slidably disposed within the lumen of, the cannula.

16. The system of claim 15, wherein the energy delivery device comprises an

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electrode.

17. The system of claim 15, wherein the energy delivery device comprises an optical fiber for delivering laser energy.

18. The system of claim 15, wherein the energy delivery device comprises an
5 ultrasonic transducer.

19. The system of claim 15, further comprising a media delivery device coupled to the proximal end of the cannula.

10 20. The system of claim 21, the cannula comprising a plurality of lumens extending between the proximal and distal ends, and further comprising an aspirator coupled to the distal end of the cannula and configured to create a suction within one of the lumens.

21. The system of claim 15, wherein the cannula is adapted to deliver a substance into
15 the breast duct, the substance selected from the group consisting of a radiation seed, a toxic agent, a therapeutic agent, a necrosing agent, saline, and electrically conductive fluid.

22. A system for treating breast tissue, comprising:
20 a cannula having a proximal end, a distal end, and a lumen extending between the proximal and distal ends, the distal end configured for insertion into a breast duct such that the lumen is in fluid communication with the breast duct;

an imaging device for providing imaging functionality to the cannula;
a media delivery device coupled to the proximal end of the cannula; and
an aspirator coupled to the distal end of the cannula, the aspirator configured to
create a suction within the lumen.

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23. The system of claim 22, wherein the imaging device is secured to, or slidably
disposed in the lumen of, the cannula.

24. The system of claim 23, wherein the imaging device comprises a CCD camera
10 secured to the cannula.

25. The system of claim 22, wherein the imaging device comprises an endoscope.

26. The system of claim 22, wherein the cannula is adapted to deliver a substance into
15 the breast duct, the substance selected from the group consisting of a radiation seed, a
toxic agent, a therapeutic agent, a necrosing agent, saline, and electrically conductive
fluid.

27. A system for treating breast tissue, comprising:
20 a cannula having a proximal end, a distal end, and a first lumen extending
between the proximal and distal ends, the distal end configured for insertion into a breast
duct such that the first lumen is in fluid communication with the breast duct;

an energy delivery device located at the distal end of the cannula;
a media delivery device coupled to the proximal end of the cannula; and
an aspirator coupled to the distal end of the cannula, the aspirator configured to
create a suction within the first lumen.

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28. The system of claim 27, wherein the energy delivery device is secured to the
cannula, or slidably disposed within the first lumen.

29. The system of claim 27, the cannula having a second lumen extending between
10 the proximal and distal ends, wherein the energy delivery device is slidably disposed
within the second lumen.

30. The system of claim 27, wherein the energy delivery device comprises an
electrode.

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31. A method of treating breast duct tissue, comprising:
inserting a distal end of a cannula into a breast duct, the cannula having an
electrode at the distal end;
placing a tissue diagnostic device through the cannula into the breast duct;
20 analyzing tissue in the breast duct using the tissue diagnostic device; and
ablating tissue in the breast duct using the electrode.

32. The method of claim 31, wherein the analyzing comprises determining tissue to be ablated by the electrode.

33. The method of claim 31, wherein the ablating comprises placing the electrode
5 against the tissue, and delivering energy to the tissue using the electrode.

34. The method of claim 31, wherein the ablating comprises:
delivering an electrically conductive fluid into the breast duct such that the
electrically conductive fluid is in contact with the tissue;

10 energizing the electrode;
and delivering energy to the tissue via the electrically conductive fluid.

35. The method of claim 31, wherein the ablating comprises delivering energy to the
tissue in a bi-polar arrangement.

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36. The method of claim 31, wherein the ablating comprises delivering energy to the
tissue in a mono-polar arrangement.

37. The method of claim 31, further comprising obtaining an image of the breast duct.

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38. The method of claim 37, wherein the obtaining an image comprises using an
endoscope.

39. The method of claim 37, wherein the obtaining an image comprises using a CCD camera.

5 40. A method of treating breast duct tissue, comprising:
inserting a distal end of a cannula into a breast duct, the cannula having a tissue
diagnostic device and an energy delivery device;
examining tissue or cells at the breast duct using the tissue diagnostic device to
determine whether to treat the breast duct; and
10 treating at least a portion of the breast duct using the energy delivery device.

41. The method of claim 40, wherein the tissue diagnostic device comprises a spectrometer.

15 42. The method of claim 40, wherein the treating comprises applying energy to breast duct tissue.

43. The method of claim 42, wherein the energy is applied to the breast duct tissue by
placing an electrode against the breast duct tissue, and delivering energy to the breast
20 duct tissue using the electrode.

44. The method of claim 42, wherein the energy is delivered to the breast duct tissue by delivering an electrically conductive fluid into the breast duct such that the electrically conductive fluid is in contact with the breast duct tissue, and delivering energy to the breast duct tissue via the electrically conductive fluid.

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45. The method of claim 40, wherein the treating comprises placing a radiation seed within the breast duct.

46. The method of claim 40, wherein the treating comprises placing a toxic agent, a therapeutic agent, or a necrosing agent within the breast duct.

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47. The method of claim 40, wherein the treating comprises delivering ultrasonic energy to the breast duct tissue.

15 48. The method of claim 40, further comprising obtaining an image of the breast duct.

49. A method of treating breast duct tissue, comprising:
delivering an electrically conductive media within a breast duct; and
delivering radio frequency energy to an electrode that is in contact with the
20 delivered electrically conductive media.

50. The method of claim 49, wherein the electrode is secured to a cannula that is partially inserted into the breast duct.

51. The method of claim 49, wherein the electrode is slidably disposed in a lumen of
5 a cannula that is partially inserted into the breast duct.

52. The method of claim 49, further comprising examining tissue in the breast duct before the radio frequency energy is delivered.

10 53. The method of claim 52, wherein the examining the tissue comprises placing a tissue diagnostic device in the breast duct.

54. The method of claim 52, wherein the examining the tissue comprises obtaining an image of the breast duct.

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55. A method of treating breast duct tissue, comprising:
inserting a cannula having imaging functionality into a breast duct;
obtaining an image of at least a portion of the breast duct; and
treating breast duct tissue identified in the obtained image.

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56. The method of claim 55, wherein the treating comprises applying energy to the breast duct tissue.

57. The method of claim 56, wherein the energy is applied to the breast duct tissue by placing an electrode against the breast duct tissue, and delivering energy to the breast duct tissue using the electrode.

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58. The method of claim 56, wherein the energy is applied to the breast duct tissue by delivering an electrically conductive fluid into the breast duct such that the electrically conductive fluid is in contact with the breast duct tissue, and delivering energy to the breast duct tissue via the electrically conductive fluid.

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59. The method of claim 55, wherein the treating comprises placing a radiation seed into the breast duct.

60. The method of claim 55, wherein the treating comprises placing a toxic agent, a therapeutic agent, or a necrosing agent into the breast duct.

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61. The method of claim 55, wherein the treating comprises delivering ultrasonic energy to the breast duct tissue.